



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/522,683

01/30/2006

Yong-Kuk Yun

YOM-0221

1779

23413 7590 05/16/2007  
CANTOR COLBURN, LLP  
55 GRIFFIN ROAD SOUTH  
BLOOMFIELD, CT 06002

EXAMINER

WU, SHEAN CHIU

ART UNIT

PAPER NUMBER

1756

MAIL DATE

DELIVERY MODE

05/16/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/522,683

Applicant(s)

YUN ET AL.

Examiner

Shean C. Wu

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-17 is/are rejected.
- 7) ☒ Claim(s) 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The notation "D" in formula 6 is not defined and "B" is not part of formulae (6)-(8).

2. Claims 16 and 17 are newly added.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

***Claim Rejections - 35 USC § 103***

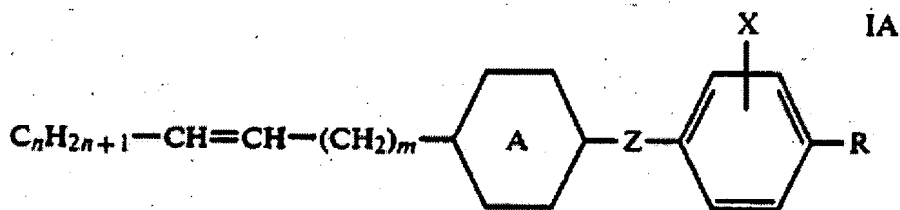
Art Unit: 1756

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 17 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Buchecker et al. (US 4,770,503).

The reference discloses liquid crystal compounds of the formula I

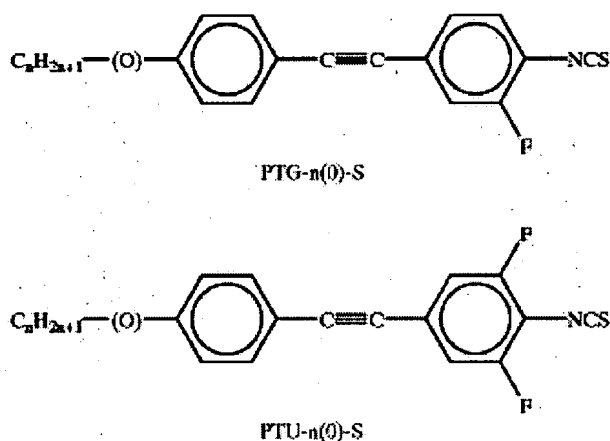


, wherein  $m=4-7$ ,  $n=0$  or a positive whole number,  $A$ =cyclohexylene,  $Z=CH_2CH_2$ ,  $X=F$  and  $R=NCS$ . Also, see formula 1h (on col. 3 and claim 21). The reference mixture comprising the compound of formula IA is introducing into an evacuated cell (col. 9, lines 31-40). Therefore, the reference anticipates the claimed invention. If not anticipated because the present compound is not exemplified, it would have been obvious to those skilled in the art to follow the general guidelines of the reference Example 2 (the fluorinated cyclohexylephenylisothiocyanate) by modifying the starting material to arrive at the claimed invention.

Art Unit: 1756

6. Claim 16 is rejected under 35 U.S.C. 102(b)/(e) as being anticipated by EP 1126006 (or equivalent US 2002/0142108).

The reference disclose a medium (nematic host mixture) comprising isocyanate derivative of formula I. See the compounds of the following on page 24:

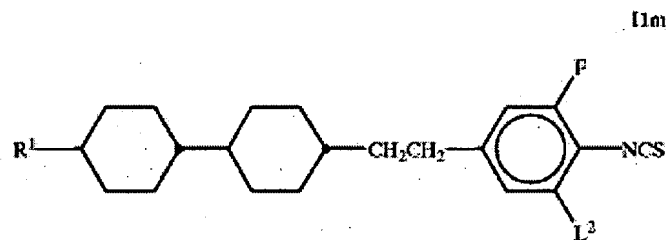


Also see Use-example 7-9 on pages 47 and 48. The reference clearly anticipates the claimed invention.

7. Claim 17 is rejected under 35 U.S.C. 102(b) as being anticipated by US 2002/0030180.

The reference discloses an electro-optical display comprising a nematic liquid-crystal mixture containing the compound of formula I in the cell ([0051]).

See the compound of formula on page 4



Art Unit: 1756

and Schemes 5-7 on pages 12 and 13. The reference anticipates the claimed invention.

8. Claims 1, 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2002/0030180.

The reference discloses a nematic mixture comprising compounds (5 to 50% by weight) of the formula I and the compounds (20 to 90% by weight) of formulae II to VI (see ([0087]-[0088])). The formulae II, IV and VI read on the present formulae 6 and 7. Although the present mixture is not exemplified by the reference, it would have been obvious to those skilled in the art to utilize the reference teaching by substituting the compounds of scheme 7 for CCP-3SF.F in the reference mixture 1 to arrive at the claimed invention.

9. Claims 4-5, 7 and 9-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2002/0030180 as applied to claims 1, 3 and 6 above in view of Takizawa et al. (US 6,573,964).

US '180 differs from the claims in that the claims have more specific components in the liquid crystal display device. Takizawa discloses the present components in display device. The reference (US '964) figures comprise each component including domain-regulating unit of the present display device. Because Takizawa et al teach the present display device, it would have been obvious to those skilled in the art to apply the liquid crystal mixture of US '180 into the device of Takizawa to arrive at the claimed invention.

Art Unit: 1756

With respect to claim 5, the present liquid crystal cell has a phase transition temperature of at least 85 °C and response speed of 9 to 11 ms. The reference mixture 1 shows the phase transition 105.5 °C without specifying the response time. Because the reference mixture comprises majority of the present compounds, it would have been obvious to those skilled in the art to expect the response time is within the claimed range.

*Response to Arguments*

10. Applicant's arguments filed 2/27/07, with respect to the rejections in the previous Office action have been fully considered and are persuasive. Therefore, the rejections have been withdrawn. However, upon further consideration, new grounds of rejection are made in the sections 1 and 5-9 abovementioned.

11. Claim 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

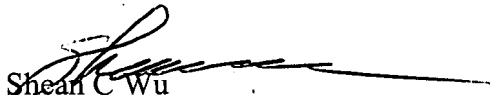
Art Unit: 1756

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shean C. Wu whose telephone number is 571-272-1393. The examiner can normally be reached on 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Shean C. Wu  
Primary Examiner  
Art Unit 1756